

Amendments to the Claims

1-9. Cancelled.

b1 10. (Currently amended) A method of controlling a biaxial wheel test stand for simulating driving loads, the test stand including a load unit having a servo-hydraulic vertical load cylinder for adjusting a vertical force, a servo-hydraulic load cylinder for adjusting a horizontal force, and a pivot head which can be adjusted by means of a camber cylinder about a head pivot point for adjusting the magnitude of a camber angle of a wheel to be tested, the test stand further including a drive unit with a driven drum having starting rings, the wheel to be tested being pressed against the starting rings pressed with the load unit, whereby the vertical load cylinder and the horizontal load cylinder are adjusted by controlling the vertical and horizontal forces respectively force and the camber cylinder by controlling the angle, said method including the steps of adjusting the horizontal force, the vertical force and the camber angle based on the wheel radial force and the wheel side force previously determined during a road test, and using the position of a point of application of a resulting force of the wheel radial force and the wheel side force as the control magnitude for the camber angle.

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11. (Currently amended) ~~The method of controlling according to claim 10 further including the step of~~ A method of controlling a biaxial wheel test stand for simulating driving loads, the test stand including a load unit having a servo-hydraulic vertical load cylinder for adjusting a vertical force, a servo-hydraulic load cylinder for adjusting a horizontal force, and a pivot head which can be adjusted by means of a camber cylinder about a head pivot point for adjusting the

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magnitude of a camber angle of a wheel to be tested, the test stand further including a drive unit with
a driven drum having starting rings, the wheel to be tested being pressed against the starting rings
pressed with the load unit, whereby the vertical load cylinder and the horizontal load cylinder are
adjusted by controlling the vertical and horizontal forces respectively and the camber cylinder by
10 controlling the angle, said method including the steps of adjusting the horizontal force, the vertical
force and the camber angle based on the wheel radial force and the wheel side force previously
determined during a road test, using the position of a point of application of a resulting force of the
wheel radial force and the wheel side force as the control magnitude for the camber angle, and
measuring the force of the camber cylinder and using the measured camber force as the control
15 magnitude for determining the point of the application of the resulting force.

³
~~12~~. (Previously presented) The method of controlling according to claim ²
~~11~~
wherein the point of application of the resulting force is spaced a distance from the wheel center.

⁴
~~13~~. (Previously presented) The method of controlling according to claim ³
~~12~~ further
including the step of calculating the resulting force distance of the point of application of the
resulting force by means of the equation

$$R_{DS} = (M_{Fs} + Fa \times R_{dyn}) / Fr - a1 \text{ wherein}$$

- 5 M_{Fs} : the moment of the camber cylinder force around the head pivot point;
 Fa : the axial wheel side force from the road test;
 Fr : the wheel radial force from the road test;

R_{dyn} : the dynamic roll radius; and,

a_1 : a distance between the head pivot point and the tire center.

14. (Previously presented) The method of controlling according to claim 13 further including the step of adjusting the vertical force, the horizontal force and the camber angle by means of a control or evaluation unit, until an unambiguous solution for the equations is reached

$$R_{DS} = (M_{Fs} + Fa \times R_{dyn}) / Fr - a_1;$$

$$F_v = -Fr \times \cos(\gamma) + Fa \times \sin(\gamma) \text{ and}$$

$$F_h = -Fr \times \sin(\gamma) - Fa \times \cos(\gamma)$$

wherein

R_{DS} : the resulting force distance;

M_{Fs} : the moment of the camber cylinder force around the head pivot point;

Fa : the axial wheel side force from the road test;

R_{dyn} : the dynamic roll radius;

Fr : the wheel radial force from the road test;

a_1 : the distance between the head pivot point and the tire center;

F_v : the vertical force; and,

F_h : the horizontal force.

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 15. ⁶

(Previously presented)

The method of controlling according to claim ⁵ 14 further

including the step of approximating the position of the resulting force application point by setting the resulting force distance to zero.

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 16.

(Currently amended) ~~The method of controlling according to claim 10 further~~

~~including the step of~~ A method of controlling a biaxial wheel test stand for simulating driving loads,

the test stand including a load unit having a servo-hydraulic vertical load cylinder for adjusting a

vertical force, a servo-hydraulic load cylinder for adjusting a horizontal force, and a pivot head

which can be adjusted by means of a camber cylinder about a head pivot point for adjusting the

magnitude of a camber angle of a wheel to be tested, the test stand further including a drive unit with

a driven drum having starting rings, the wheel to be tested being pressed against the starting rings

pressed with the load unit, whereby the vertical load cylinder and the horizontal load cylinder are

adjusted by controlling the vertical and horizontal forces respectively and the camber cylinder by

controlling the angle, said method including the steps of adjusting the horizontal force, the vertical

force and the camber angle based on the wheel radial force and the wheel side force previously

determined during a road test, using the position of a point of application of a resulting force of the

wheel radial force and the wheel side force as the control magnitude for the camber angle, and

calculating the resulting force distance of the point of application of the resulting force by means of

the equation

$$R_{DS} = (M_{Fs} + Fa \times R_{dyn}) / Fr - a1$$

wherein

M_{Fs} : the moment of the camber cylinder force around the head pivot point;

F_a : the axial wheel side force from the road test;

F_r : the wheel radial force from the road test;

R_{dyn} : the dynamic roll radius; and,

a_1 : a distance between the head pivot point and the tire center.

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17.

(Currently amended) ~~The method of controlling according to claim 10 further~~
~~including the step of~~ A method of controlling a biaxial wheel test stand for simulating driving loads,
the test stand including a load unit having a servo-hydraulic vertical load cylinder for adjusting a
vertical force, a servo-hydraulic load cylinder for adjusting a horizontal force, and a pivot head
which can be adjusted by means of a camber cylinder about a head pivot point for adjusting the
magnitude of a camber angle of a wheel to be tested, the test stand further including a drive unit with
a driven drum having starting rings, the wheel to be tested being pressed against the starting rings
pressed with the load unit, whereby the vertical load cylinder and the horizontal load cylinder are
adjusted by controlling the vertical and horizontal forces respectively and the camber cylinder by
controlling the angle, said method including the steps of adjusting the horizontal force, the vertical
force and the camber angle based on the wheel radial force and the wheel side force previously
determined during a road test, using the position of a point of application of a resulting force of the
wheel radial force and the wheel side force as the control magnitude for the camber angle, and
adjusting the vertical force, the horizontal force and the camber angle by means of a control or
evaluation unit, until an unambiguous solution for the equations is reached

$$R_{DS} = (M_{Fs} + Fa \times R_{dyn}) / Fr - a1;$$

$$Fv = - Fr \times \cos (\gamma) + Fa \times \sin (\gamma) \text{ and}$$

$$Fh = - Fr \times \sin (\gamma) - Fa \times \cos (\gamma)$$

wherein

- 20 R_{DS} : the resulting force distance;
- M_{Fs} : the moment of the camber cylinder force around the head pivot point;
- Fa : the axial wheel side force from the road test;
- R_{dyn} : the dynamic roll radius;
- Fr : the wheel radial force from the road test;
- 25 $a1$: the distance between the head pivot point and the tire center;
- Fv : the vertical force; and,
- Fh : the horizontal force.

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(Currently amended) ~~The method of controlling according to claim 10 further including the step of~~ A method of controlling a biaxial wheel test stand for simulating driving loads, the test stand including a load unit having a servo-hydraulic vertical load cylinder for adjusting a vertical force, a servo-hydraulic load cylinder for adjusting a horizontal force, and a pivot head
 5 which can be adjusted by means of a camber cylinder about a head pivot point for adjusting the magnitude of a camber angle of a wheel to be tested, the test stand further including a drive unit with a driven drum having starting rings, the wheel to be tested being pressed against the starting rings pressed with the load unit, whereby the vertical load cylinder and the horizontal load cylinder are

10 adjusted by controlling the vertical and horizontal forces respectively and the camber cylinder by
controlling the angle, said method including the steps of adjusting the horizontal force, the vertical
force and the camber angle based on the wheel radial force and the wheel side force previously
determined during a road test, using the position of a point of application of a resulting force of the
wheel radial force and the wheel side force as the control magnitude for the camber angle, and
15 approximating the position of the resulting force application point by setting the resulting force
distance to zero.

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10. (Previously presented) A wheel test stand for simulating driving loads on a
vehicle wheel, said test stand comprising a load unit having a servo-hydraulic vertical load cylinder
for adjusting a vertical force on the wheel, a servo-hydraulic horizontal load cylinder for adjusting
a horizontal force on the wheel, and a pivot head which can be adjusted by means of a
5 servo-hydraulic camber cylinder for adjusting the camber angle of the wheel; a drive unit having a
driven drum with starting rings, to which the wheel can be pressed by means of the load unit; a
control and evaluation unit for adjusting the horizontal force, the vertical force and the camber angle;
and a measuring unit connected to the camber cylinder which measures a camber cylinder force
acting on the camber cylinder.

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20. (Currently amended) The wheel test stand according to claim 10, wherein the
measuring unit device consists of a capsule-type dynamometer connected to the camber cylinder.